

# SEQUENCE LISTING

<110> Chen et al.

<120> METHODS AND COMPOSITIONS FOR STIMULATING AXON REGENERATION AND PREVENTING NEURONAL CELL DEGENERATION

<130> ERM-105.01

<160> 4

<170> PatentIn version 3.0

<210> 1

<211> 1050

<212> DNA

<213> homo sapiens

<220>

<221> CDS

<222> (32)..(751)

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Gly Tyr Asp Asn Arg Glu Ile Val Met Lys Tyr Ile His Tyr Lys Leu
                               10                               15                               20

tcg cag agg ggc tac gag tgg gat gcg gga gat gtg ggc gcc gcg ccc      148
Ser Gln Arg Gly Tyr Glu Trp Asp Ala Gly Asp Val Gly Ala Ala Pro
                               25                               30                               35

ccg ggg gcc gcc ccc gcg ccg ggc atc ttc tcc tcg cag ccc ggg cac      196
Pro Gly Ala Ala Pro Ala Pro Gly Ile Phe Ser Ser Gln Pro Gly His
40                               45                               50                               55

acg ccc cat aca gcc gca tcc cgg gac ccg gtc gcc agg acc tcg ccg      244
Thr Pro His Thr Ala Ala Ser Arg Asp Pro Val Ala Arg Thr Ser Pro
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ctg cag acc ccg gct gcc ccc ggc gcc gcc gcg ggg cct gcg ctc agc      292
Leu Gln Thr Pro Ala Ala Pro Gly Ala Ala Ala Gly Pro Ala Leu Ser
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ccg gtg cca cct gtg gtc cac ctg acc ctc cgc cag gcc ggc gac gac      340
Pro Val Pro Pro Val Val His Leu Thr Leu Arg Gln Ala Gly Asp Asp
90                               95                               100

ttc tcc cgc cgc tac cgc cgc gac ttc gcc gag atg tcc agg cag ctg      388
Phe Ser Arg Arg Tyr Arg Arg Asp Phe Ala Glu Met Ser Arg Gln Leu
105                               110                               115

cac ctg acg ccc ttc acc gcg cgg gga cgc ttt gcc acg gtg gtg gag      436
His Leu Thr Pro Phe Thr Ala Arg Gly Arg Phe Ala Thr Val Val Glu
120                               125                               130                               135

gag ctc ttc agg gac ggg gtg aac tgg ggg agg att gtg gcc ttc ttt      484
Glu Leu Phe Arg Asp Gly Val Asn Trp Gly Arg Ile Val Ala Phe Phe

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| 140                               | 145                              | 150         |      |
|-----------------------------------|----------------------------------|-------------|------|
| gag ttc ggt ggg gtc atg tgt gtg   | gag agc gtc aac cgg              | gag atg tcg | 532  |
| Glu Phe Gly Gly Val Met Cys Val   | Glu Ser Val Asn Arg              | Glu Met Ser |      |
| 155                               | 160                              | 165         |      |
| ccc ctg gtg gac aac atc gcc ctg   | tgg atg act gag tac ctg aac cgg  |             | 580  |
| Pro Leu Val Asp Asn Ile Ala Leu   | Trp Met Thr Glu Tyr Leu Asn Arg  |             |      |
| 170                               | 175                              | 180         |      |
| cac ctg cac acc tgg atc cag gat   | aac gga ggc tgg gat gcc ttt gtg  |             | 628  |
| His Leu His Thr Trp Ile Gln Asp   | Asn Gly Gly Trp Asp Ala Phe Val  |             |      |
| 185                               | 190                              | 195         |      |
| gaa ctg tac ggc ccc agc atg cgg   | cct ctg ttt gat ttc tcc tgg ctg  |             | 676  |
| Glu Leu Tyr Gly Pro Ser Met Arg   | Pro Leu Phe Asp Phe Ser Trp Leu  |             |      |
| 200                               | 205                              | 210         | 215  |
| tct ctg aag act ctg ctc agt ttg   | gcc ctg gtg gga gct tgc atc acc  |             | 724  |
| Ser Leu Lys Thr Leu Leu Ser Leu   | Ala Leu Val Gly Ala Cys Ile Thr  |             |      |
| 220                               | 225                              | 230         |      |
| ctg ggt gcc tat ctg ggc cac aag   | tga agtcaacatg cctgccccaa        |             | 771  |
| Leu Gly Ala Tyr Leu Gly His Lys   |                                  |             |      |
| 235                               |                                  |             |      |
| acaaatatgc aaaagggttca ctaaagcagt | agaaataata tgcattgtca gtgatgttcc |             | 831  |
| atgaaacaaa gctgcaggct gtttaagaaa  | aaataacaca catataaaca tcacacacac |             | 891  |
| agacagacac acacacacac aacaattaac  | agtcttcagg caaaacgtcg aatcagctat |             | 951  |
| ttactgccaa agggaaatat catttatittt | ttacattatt aagaaaaaaa gatttattta |             | 1011 |
| tttaagacag tcccatcaaa actcctgtct  | ttggaaatc                        |             | 1050 |

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Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala  
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Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile  
 35 40 45

Phe Ser Ser Gln Pro Gly His Thr Pro His Thr Ala Ala Ser Arg Asp  
 50 55 60

Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala

|   |                     |                             |  |     |     |     |
|---|---------------------|-----------------------------|--|-----|-----|-----|
| 65  |                     | 70                          |  | 75  |     | 80  |
| Ala Ala Gly Pro   | Ala Leu Ser Pro Val | Pro Pro Val Val His Leu Thr |  |     |     |     |
|   | 85                  | 90                          |  |     | 95  |     |
| Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Arg Asp Phe |                     |                             |  |     |     |     |
|   | 100                 | 105                         |  |     | 110 |     |
| Ala Glu Met Ser Arg Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly |                     |                             |  |     |     |     |
|   | 115                 | 120                         |  |     | 125 |     |
| Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp |                     |                             |  |     |     |     |
|   | 130                 | 135                         |  | 140 |     |     |
| Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu |                     |                             |  |     |     |     |
|   | 145                 | 150                         |  | 155 |     | 160 |
| Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp |                     |                             |  |     |     |     |
|   | 165                 | 170                         |  |     | 175 |     |
| Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn |                     |                             |  |     |     |     |
|   | 180                 | 185                         |  |     | 190 |     |
| Gly Gly Trp Asp Ala Phe Val Glu Leu Tyr Gly Pro Ser Met Arg Pro |                     |                             |  |     |     |     |
|   | 195                 | 200                         |  | 205 |     |     |
| Leu Phe Asp Phe Ser Trp Leu Ser Leu Lys Thr Leu Leu Ser Leu Ala |                     |                             |  |     |     |     |
|   | 210                 | 215                         |  | 220 |     |     |
| Leu Val Gly Ala Cys Ile Thr Leu Gly Ala Tyr Leu Gly His Lys     |                     |                             |  |     |     |     |
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| aaccagagac gagactcagt gagtgagcag gtgttttggg caatggactg gttgagccca   | 120 |
| tccctattat aaaa atg tct cag agc aac cgg gag ctg gtg gtt gac ttt     | 170 |
| Met Ser Gln Ser Asn Arg Glu Leu Val Val Asp Phe                     |     |
| 1 5 10  |     |
| ctc tcc tac aag ctt tcc cag aaa gga tac agc tgg agt cag ttt agt     | 218 |
| Leu Ser Tyr Lys Leu Ser Gln Lys Gly Tyr Ser Trp Ser Gln Phe Ser     |     |
| 15 20 25  |     |
| gat gtg gaa gag aac agg act gag gcc cca gaa ggg act gaa tcg gag     | 266 |
| Asp Val Glu Glu Asn Arg Thr Glu Ala Pro Glu Gly Thr Glu Ser Glu     |     |
| 30 35 40  |     |

|   |     |
|---|-----|
| atg gag acc ccc agt gcc atc aat ggc aac cca tcc tgg cac ctg gca   | 314 |
| Met Glu Thr Pro Ser Ala Ile Asn Gly Asn Pro Ser Trp His Leu Ala   |     |
| 45 50 55 60   |     |
| gac agc ccc gcg gtg aat gga gcc act gcg cac agc agc agt ttg gat   | 362 |
| Asp Ser Pro Ala Val Asn Gly Ala Thr Ala His Ser Ser Ser Leu Asp   |     |
| 65 70 75  |     |
| gcc cgg gag gtg atc ccc atg gca gca gta aag caa gcg ctg agg gag   | 410 |
| Ala Arg Glu Val Ile Pro Met Ala Ala Val Lys Gln Ala Leu Arg Glu   |     |
| 80 85 90  |     |
| gca ggc gac gag ttt gaa ctg cgg tac cgg cgg gca ttc agt gac ctg   | 458 |
| Ala Gly Asp Glu Phe Glu Leu Arg Tyr Arg Arg Ala Phe Ser Asp Leu   |     |
| 95 100 105  |     |
| aca tcc cag ctc cac atc acc cca ggg aca gca tat cag agc ttt gaa   | 506 |
| Thr Ser Gln Leu His Ile Thr Pro Gly Thr Ala Tyr Gln Ser Phe Glu   |     |
| 110 115 120   |     |
| cag gta gtg aat gaa ctc ttc cgg gat ggg gta aac tgg ggt cgc att   | 554 |
| Gln Val Val Asn Glu Leu Phe Arg Asp Gly Val Asn Trp Gly Arg Ile   |     |
| 125 130 135 140   |     |
| gtg gcc ttt ttc tcc ttc ggc ggg gca ctg tgc gtg gaa agc gta gac   | 602 |
| Val Ala Phe Phe Ser Phe Gly Gly Ala Leu Cys Val Glu Ser Val Asp   |     |
| 145 150 155   |     |
| aag gag atg cag gta ttg gtg agt cgg atc gca gct tgg atg gcc act   | 650 |
| Lys Glu Met Gln Val Leu Val Ser Arg Ile Ala Ala Trp Met Ala Thr   |     |
| 160 165 170   |     |
| tac ctg aat gac cac cta gag cct tgg atc cag gag aac ggc ggc tgg   | 698 |
| Tyr Leu Asn Asp His Leu Glu Pro Trp Ile Gln Glu Asn Gly Gly Trp   |     |
| 175 180 185   |     |
| gat act ttt gtg gaa ctc tat ggg aac aat gca gca gcc gag agc cga   | 746 |
| Asp Thr Phe Val Glu Leu Tyr Gly Asn Asn Ala Ala Ala Glu Ser Arg   |     |
| 190 195 200   |     |
| aag ggc cag gaa cgc ttc aac cgc tgg ttc ctg acg ggc atg act gtg   | 794 |
| Lys Gly Gln Glu Arg Phe Asn Arg Trp Phe Leu Thr Gly Met Thr Val   |     |
| 205 210 215 220   |     |
| gcc ggc gtg gtt ctg ctg ggc tca ctc ttc agt cgg aaa tga           | 836 |
| Ala Gly Val Val Leu Leu Gly Ser Leu Phe Ser Arg Lys               |     |
| 225 230   |     |
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| tccagccgcc attgccacca ggagaacccg                                  | 926 |

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Asn Arg Thr Glu Ala Pro Glu Gly Thr Glu Ser Glu Met Glu Thr Pro  
35 40 45  
Ser Ala Ile Asn Gly Asn Pro Ser Trp His Leu Ala Asp Ser Pro Ala  
50 55 60  
Val Asn Gly Ala Thr Ala His Ser Ser Ser Leu Asp Ala Arg Glu Val  
65 70 75 80  
Ile Pro Met Ala Ala Val Lys Gln Ala Leu Arg Glu Ala Gly Asp Glu  
85 90 95  
Phe Glu Leu Arg Tyr Arg Arg Ala Phe Ser Asp Leu Thr Ser Gln Leu  
100 105 110  
His Ile Thr Pro Gly Thr Ala Tyr Gln Ser Phe Glu Gln Val Val Asn  
115 120 125  
Glu Leu Phe Arg Asp Gly Val Asn Trp Gly Arg Ile Val Ala Phe Phe  
130 135 140  
Ser Phe Gly Gly Ala Leu Cys Val Glu Ser Val Asp Lys Glu Met Gln  
145 150 155 160  
Val Leu Val Ser Arg Ile Ala Ala Trp Met Ala Thr Tyr Leu Asn Asp  
165 170 175  
His Leu Glu Pro Trp Ile Gln Glu Asn Gly Gly Trp Asp Thr Phe Val  
180 185 190  
Glu Leu Tyr Gly Asn Asn Ala Ala Ala Glu Ser Arg Lys Gly Gln Glu  
195 200 205  
Arg Phe Asn Arg Trp Phe Leu Thr Gly Met Thr Val Ala Gly Val Val  
210 215 220  
Leu Leu Gly Ser Leu Phe Ser Arg Lys  
225 230